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MEMORANDUM FOR: Deputy Director for Administration

FROM:

Information Handling Systems Architect

SUBJECT: A Critical Data and Estimates IHS for the DCI

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1. In response to your inquiry, a computer based terminal system to provide the DCI with current intelligence on critical items is practical and can be implemented in about six months.

2. The selected approach is to use OCO's Crisis Management computer system, which is a research system based on two PDP 11/70 minicomputers. A key reason for this selection is the natural association of the needed support function with the operational responsibilities of the Operations Center. Another is the immediate availability of implementation personnel who have recently developed functionalities for the Crisis Management System similar to what is needed for the DCI's system. The IHS portion of the development should be managed by ORD, which is responsible for this system.

3. The DCI's system should be considered a prototype system, and its scope constrained. It is anticipated that the ultimate system produced will serve command and control as well as information needs and will be substantially larger. To support such size appropriately and provide assured high availability, the system should be implemented on a central processing system, such as SAFE, the Ruffing Computer Center or the Special Computer Center. Soon after this prototype system is operational, ODP should be tasked to begin work on the design and development of an operational system.

4. Several management issues must be addressed before we undertake this development effort. First, the creation and maintenance of the necessary data base will entail a major investment on the part of NFAC. Second, the data accumulating in either the prototype or follow-on operation system will have a level of sensitivity which will require extraordinary security and compartmentation measures. Third, although contractor personnel may develop the prototype system, the operational system will be the province of ODP, whose applications development resources are already stretched to their limits.

5. A more detailed development of the assessment is attached.

25X1

cc: Bruce Johnson

Attachment: 25X1
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ASSESSMENT OF AN IHS FOR CRITICAL DATA AND ESTIMATES FOR THE DCI

1. A computer-based system to make available critical data
and estimates to the DCI on a real time basis can be readily
provided. On a quick look basis, it is estimated that this could
be done within six months, with suitable priorities. If such an
early availability is sought, the critical path item will
probably be the determination of the exact report formats
required, and their implementation in software. (The
organizational development to report the DCI's system should be
done in parallel with their efforts to avoid extending the IOC
data.)

2.   There are three possible facilities for providing this
service in the near future: The DEC PDP 11/70 minicomputer
supporting the OCO, the Ruffing Computer Center (RCC) facility,
and the Special Computing Center. Ultimately, the system should
probably reside on SAFE, but the availability of that facility is
at least two years away. My appreciation is that the
organization best suited to support this new database for
top-level decisionmakers is the OCO, because this function is a
logical extension of this Office's current responsibilities. In
the Crisis Management Center, they track and report on the
current crisis situations, using direct cable and data inputs and

operating in a real time information systems environment. In
addition, the functionalities of this facility are an ideal match
to the need, and there is readily available software development
personnel who are thoroughly knowledgeable concerning the
facility. As a consequence, selection of their office and the
supporting PDP 11/70-based research system is recommended for
this modestly sized, quickly implemented system. The database
would be supported on a continuing basis by an NFAC adjunct of
these existing OCO organizations.

3. The capabilities to be expected are as follows:

- Real time access of data using a powerful
  easy-to-read visual display unit (VDU).

- Powerful annotations and message handling facilities
  including:

  -- Viewer has an unlimited annotation capability on
     the right-hand side of text or report data;

  -- Messages of inquiry or tasking may be sent;

- The database can be updated continuously by an
  adjunct of the OCO's Operations Centers operation.

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If the Delta Date 7260 terminals replace the Ann Arbor terminals currently used with the system, some additional programming would be required to provide the right-side annotation facility unique to the Ann Arbor.

4. The database requirements are estimated to be more extensive than is implied by the thought of 40 or 50 hot issues, but not large. It should easily fit on one, dedicated 176K megabyte disk. A quick look at the system functional requirement indicates a menu-driven architecture, providing facile user flow to the information category of his concern. Since this menu-driven architecture is also the architecture of the current software system, quick implementation is facilitated.

An assessment of the scope of the database was made on the basis of the understood objective and the menu-driven approach. Based on the premise that the DCI will want to evaluate decision alternatives in response to events in the world, certain current status information is also considered to be highly desirable. Such information provides support to the process of determining alternative responses or changes in plans that are available, either in response to unforeseen events or should current events provide heretofore unanticipated outcomes.

Attachment 1 presents the top-level menu hypothesized

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for the database. This is the type of data believed necessary to support DCI decisionmaking. It can be seen that the data requirements are likely to be more substantial than might be initially anticipated, even for this small prototype. As a consequence of a primitive database sizing estimate, it is estimated that one additional disk drive dedicated to this database will be required in the PDP 11/70 facility, and the core memory of the B-computer cpu should be increased to the 384K bytes of the A.

5. The implementation considerations are as follows:

- The screen format, data format, and data entry methodology defined by the NFAC operating organization and approved by the DCI;

- The software can be readily developed by the resident SAI contractor personnel whose workloads are tapering off, but slight augmentation in the current level of effort will be required. The system will be implemented in "C," a structured HOL, similar to PASCAL, which has been used for the rest of the software;

- Immediate order of an additional disk drive and expanded core memory for the B-computer

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- The prototype facility development should be placed under the cognizance of ORD, which is the Agency office originally and currently responsible for the development of this facility.

6. It should be recognized that the OCO minicomputer facility is strictly a research facility. Its sole application is the CMASS, used in the sixth floor Task Force Area. Its use is not required; it is an optional facility for the ad hoc crisis teams that are assembled to deal with a particular situation. The computer facility is generally not used in the Operations Center on the seventh floor.

Only one of the cpu's is used for operational purposes at a time, accessing to the 176K megabyte disk. The other has been idle, serving as backup. A second UNIX OS license has just been transferred to this facility, so all future development work will be transferred to the second machine. With acquisition of one more disk drive and increase of the core memory size in the second machine to that of the first, there should be entirely adequate capacity to accommodate the DCI system.

Since the computer facility is designed to evaluate new functionalities, it incorporates equipment and software packages from a variety of manufacturers, almost none of which are

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supported by ODP. As a consequence, comparable reliability/availability to that available from the central facilities cannot be expected.

7. The recommended approach should be considered to provide a prototype system, which will be constrained in terms of scope by the limitations of the host facility. An application-specific design should also be developed, based on experience with this prototype. It is my estimate that such a system will be much larger than the prototype, both in terms of the applications software and the database.

In no way should the OCO facility be considered to be lacking in sophistication, however. It uses the UNIX operating system, which is one of the most powerful and modern available today. It also has an eclectic family of powerful utilities, including the RAND word processing package. Since UNIX and these facilities are not available on the RCC equipment, the capability cannot be transferred over to achieve a quick implementation on a central facility of the CMASS.

8. The security of the database is a problem which must be addressed. Modifications of the current CMASS environment in which the contractor has access to the database will clearly be required. The assured exclusion of contractors to the database

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must be provided, and effective compartmentation also assured.

9.   These estimates are strictly based on a quick look at the problem. If the capability is attractive, a more detailed evaluation should be performed and developed.   The total program plan and budget should be developed by NFAC since their office will be responsible for the user requirements, database creation and maintenance, and operation of the system.   NFAC will need ORD's support on the planning as well as the implementation.

First-Option Menu

1. High Priority News and Pointer File (news not more than X hours old;
    Pointer File indexes other categories as appropriate);

STAT 2. Action Cables (outgoing) (not more than X hours old);

3. Covert Projects Status;

7. I & W Issues (e.g.: alert status, positioning, deployments, others);

8. Terrorist;

9. Status of Communications [   ](failures, degradations, STAT
    and remedial plans only);

10. Overseas Agency Personnel Assets: (type and location);

11. Overseas-Sited Physical Assets: (type and location); and

12. Overseas Mobile Physical Assets: (type and location).